

DISCRETE MATHEMATICS SEMINAR
CENTER FOR APPLIED MATHEMATICS AND SCIENCE
DEPARTMENT OF MATHEMATICS
UNIVERSITY OF WEST GEORGIA

2:00 - 2:50 PM, FRIDAY, OCTOBER 16, 2015

BOYD 306

Speaker: **Dr. David Leach** (Department of Mathematics, UWG)

Title: **Modular Leech Trees**

Abstract:

In 1975 John Leech asked when can the edges of a tree on n vertices be labeled with positive integers such that the sums along the paths are exactly the integers $1, 2, \dots, \binom{n}{2}$. He found five such trees, and no additional trees have been discovered since. In 2009 Leach and Walsh introduced the idea of labeling trees with elements of the group \mathbb{Z}_k where $k = \binom{n}{2} + 1$ and examined the cases for $n \leq 6$. In this talk we will look at some necessary conditions for the existence of modular leech trees and specifically at the case where $n = 8$.

Speaker: **Elizabeth McCrina** (Department of Mathematics, UWG)

Title: **Lights out over \mathbb{Z}_7**

Abstract:

In this presentation, we examine a verison of the *Lights Out Game* over the field \mathbb{Z}_7 . Specifically, we study the game over graphs including: a path on three vertices, a complete graph on n vertices, and a complete graph on four vertices with one edge removed. We determine a method for solving these instances and their respective solutions.